

## 9. Percentage

### Exercise 9A

#### 1. Question

Express each of the following as a fraction:

(i) 48% (ii) 220% (iii) 2.5%

#### Answer

(i) 48% means, 48 divided by 100.

$$\text{So, } 48\% = 48 / 100$$

$$= 12 / 25$$

(ii) 220% means, 220 divided by 100.

$$\text{So, } 220\% = 220 / 100$$

$$= 11 / 5$$

(iii) 2.5% means, 2.5 divided by 100.

$$\text{So, } 2.5\% = 2.5 / 100$$

$$= 1 / 40$$

#### 2. Question

Express each of the following as a decimal:

(i) 6% (ii) 72% (iii) 125%

#### Answer

(i) 6% means, 6 divided by 100.

$$\text{So, } 6\% = 6 / 100$$

$$= 3 / 50 = 0.06$$

(ii) 72% means, 72 divided by 100.

$$\text{So, } 72\% = 72 / 100$$

$$= 18 / 25 = 0.72$$

(iii) 125% means, 125 divided by 100.

$$\text{So, } 125\% = 125 / 100$$

$$= 5 / 4 = 1.25$$

#### 3. Question

Express each of the following as a percentage:

(i)  $\frac{9}{25}$  (ii)  $\frac{3}{125}$  (iii)  $\frac{12}{5}$

#### Answer

$$(i) \frac{9}{25} = \left( \frac{9}{25} \times 100 \right) \%$$

$$= (9 \times 4) \%$$

$$= 36\%$$

$$(ii) \frac{3}{125} = \left(\frac{3}{125} \times 100\right) \%$$

$$= 2.4\%$$

$$(iii) \frac{12}{5} = \left(\frac{12}{5} \times 100\right) \%$$

$$= (12 \times 20) \%$$

$$= 240\%$$

#### 4. Question

Convert the ratio 4 : 5 to percentage.

#### Answer

$$4 : 5 = \frac{4}{5}$$

$$= \left(\frac{4}{5} \times 100\right) \% \text{ [Because } 100\% = 1]$$

$$= 80\%$$

#### 5. Question

Express 125% as a ratio.

#### Answer

$$125\% = 125/100$$

$$= 5/4 \text{ [Divided by 25]}$$

$$= 5 : 4$$

#### 6. Question

Which is largest in  $6\frac{2}{3}\%$ ,  $\frac{3}{20}$  and 0.14?

#### Answer

$$6\frac{2}{3}\%$$

$$= (20/3) \%$$

$$= (20/3 \times 1/100)$$

$$= 1/15$$

$$= 0.06 \text{ \_\_\_\_ (i)}$$

$$\frac{3}{20} = 0.15 \text{ \_\_\_\_ (ii)}$$

$$0.14 \text{ \_\_\_\_ (iii)}$$

From equation (i), (ii) and (iii),

$$0.15 > 0.14 > 0.06$$

#### 7 A. Question

What per cent of 150 is 96?

**Answer**

$$\begin{aligned}\text{Percentage} &= (96 / 150 \times 100) \% \\ &= (96 / 3 \times 2) \% \text{ [Divided by 50]} \\ &= (32 \times 2) \% \\ &= 64\%\end{aligned}$$

**7 B. Question**

What per cent of 5 kg is 200 g?

**Answer**

$$\begin{aligned}5 \text{ kg} &= 5 \times 1000 \\ &= 5000 \text{ g}\end{aligned}$$

Now,

$$\begin{aligned}\text{Percentage} &= (200 / 5000 \times 100) \% \\ &= (200 / 50) \% \text{ [Divided by 100]} \\ &= 4 \%\end{aligned}$$

**7 C. Question**

What per cent of 2 litres is 250 mL?

**Answer**

$$\begin{aligned}2 \text{ liters} &= 2 \times 1000 \\ &= 2000 \text{ mL}\end{aligned}$$

Now,

$$\begin{aligned}\text{Percentage} &= (250 / 2000 \times 100) \% \\ &= (250 / 20) \% \text{ [Divided by 100]} \\ &= 12.5 \%\end{aligned}$$

**8. Question**

Find  $4\frac{1}{2}\%$  of 3600.

**Answer**

$$\begin{aligned}4\frac{1}{2}\% &= (9 / 2) \times 100 \\ &= 9 / 200\end{aligned}$$

Now,

$$\begin{aligned}9 / 200 \text{ of } 3600 &= 9 / 200 \times 3600 \\ &= 9 \times 18 \text{ [Divided by 200]} \\ &= 162\end{aligned}$$

**9. Question**

If 16% of number is 72, find the number.

**Answer**

Let the number = Z

∴ 16% of Z is 72.

$$\Rightarrow 16/100 \times Z = 72$$

$$\Rightarrow 16 Z = 7200$$

$$\Rightarrow Z = 7200/16$$

$$\Rightarrow Z = 450$$

### 10. Question

A man saves 18% of his monthly income. If he saves Rs. 3780 per month, what is his monthly income?

### Answer

Let Rs. Z his monthly income.

∴ Saving = 18% of Rs. Z

$$\Rightarrow 3780 = 18/100 \times Z$$

$$\Rightarrow 3780 = 9/50 \times Z$$

$$\Rightarrow Z = 3780 \times 50/9$$

$$\Rightarrow Z = 420 \times 50$$

[Because  $420 \times 9 = 3780$ ]

$$\Rightarrow Z = 21000$$

Therefore, his monthly income is Rs 21000/-

### 11. Question

A football team wins 7 games, which is 35% of total games played. How many games were played in all?

### Answer

Let, total games played = Z

∴ percentage of games won = 35% of Z

$$\Rightarrow 7 = 35/100 \times Z$$

$$\Rightarrow 7 = 7/20 \times Z \text{ [Divided by 5]}$$

$$\Rightarrow Z = 7 \times 20/7$$

$$\Rightarrow Z = 20$$

### 12. Question

Amit was given an increment of 20% on his salary. If his new salary is Rs. 30600, what was his salary before the increment?

### Answer

Let Amit's old salary = Z

∴ Salary after increment =  $(Z + 20Z/100)$

Now,

$$\Rightarrow (Z + 20 Z/100) = 30600$$

$$\Rightarrow (100 Z + 20 Z)/100 = 30600$$

$$\Rightarrow 120 Z = 30600 \times 100$$

$$\Rightarrow Z = 25500$$

### 13. Question

Sonal attended her school on 204 days in a full year. If her attendance is 85%, find the number of days on which the school was opened.

**Answer**

Let the number of days the school was opened = Z

∴ Percentage of attendance = 85% of Z

Now,

$$85\% \text{ of } Z = 204$$

$$\Rightarrow 85/100 \times Z = 204$$

$$\Rightarrow Z = 204 \times 100/85$$

$$\Rightarrow Z = 204 \times 20/17 \text{ [Divided by 5]}$$

$$\Rightarrow Z = 12 \times 20$$

$$\Rightarrow Z = 240$$

**14. Question**

A's income is 20% less than that of B. By what per cent is B's income more than A's?

**Answer**

Let B's income = 100

Then, A's income = (100 - 20) = 80

∴ B's income more than A's income = (100 - 80)/80 × 100

$$= 20/80 \times 100$$

$$= 1/4 \times 100$$

$$= 25$$

**15. Question**

The price of petrol goes up by 10%. By how much per cent must a motorist reduce the consumption of petrol so that the expenditure on it remains unchanged?

**Answer**

Let the consumption of petrol = 1 unit and its cost = Rs.100

∴ New cost of 1 unit of petrol = Rs.110

Now,

Rs.110 will yield 1 unit of petrol.

∴Rs.100 will yield (1/110 × 100)

$$= 10/11 \text{ unit of petrol}$$

Now,

Reduction of consumption = 1 - (10/11)

$$= 1/11$$

Percentage of reduction = (1/11 × 100) %

$$= 9\frac{1}{11}\%$$

**16. Question**

The population of a town increases by 8% annually. If the present population is 54000, what was it a year

ago?

**Answer**

Let population of the town a year ago = Z

∴ Present population = 108% of Z

$$\Rightarrow 54000 = Z \times 108/100$$

$$\Rightarrow 54000 = Z \times 27/25$$

$$\Rightarrow Z = 54000 \times 25/27$$

$$\Rightarrow Z = 2000 \times 25$$

$$\Rightarrow Z = 50000$$

**17. Question**

The value of a machine depreciates every year by 20%. If the present value of the machine be Rs. 160000, what was its value last year?

**Answer**

Let the value of machine last year = Z

∴ Present value = (100 - 20) % of Z

$$\Rightarrow 160000 = 80\% \text{ of } Z$$

$$\Rightarrow 160000 = Z \times 80/100$$

$$\Rightarrow Z = 160000 \times 100/80$$

$$\Rightarrow Z = 2000 \times 100$$

$$\Rightarrow Z = 200000$$

**18. Question**

An alloy contains 40% copper, 32% nickel and rest zinc. Find the mass of zinc in one kg of the alloy.

**Answer**

Given,

Percentage of copper = 40%

Percentage of nickel = 32%

∴ Percentage of zinc = {100 - (40 + 32)} %

$$= 28 \%$$

Now,

Mass of zinc in 1 kg of the alloy = (28 × 1/100) kg

$$= 0.28 \text{ kg}$$

$$= 0.28 \times 1000 \text{ g}$$

$$= 280 \text{ g}$$

**19. Question**

Balanced diet should contain 12% of proteins, 25% of fats and 63% of carbohydrates. If a child needs 2600 calories in his food daily, find in calories the amount of each of these in his daily food intake.

**Answer**

Amount of proteins = 12% of 2600

$$= 2600 \times \frac{12}{100}$$

$$= 26 \times 12$$

**= 312 calories**

Amount of fats = 25% of 2600

$$= 2600 \times \frac{25}{100}$$

$$= 26 \times 25$$

**= 650 calories**

Amount of carbohydrates = 63% of 2600

$$= 2600 \times \frac{63}{100}$$

$$= 26 \times 63$$

**= 1638 calories**

## 20. Question

Gunpowder contains 75% nitre and 10% sulphur. Find the amount of gunpowder which carries 9 kg nitre. What amount of gunpowder would contain 2.5 kg sulphur?

### Answer

Let the amount of gunpowder which carries 9 kg nitre = Z

$$\therefore 75\% \text{ of } Z = 9 \text{ kg}$$

$$\Rightarrow Z \times \frac{75}{100} = 9$$

$$\Rightarrow Z = 9 \times \frac{100}{75}$$

$$\Rightarrow Z = 9 \times \frac{4}{3}$$

$$\Rightarrow Z = 12 \text{ kg}$$

Now,

Let the amount of gunpowder which carries 2.5 kg sulphur = K

$$\therefore 10\% \text{ of } K = 2.5 \text{ kg}$$

$$\Rightarrow K \times \frac{10}{100} = 2.5$$

$$\Rightarrow K = 2.5 \times \frac{100}{10}$$

$$\Rightarrow K = 2.5 \times 10$$

$$\Rightarrow K = 25 \text{ kg}$$

## 21. Question

Divide Rs. 7000 among A, B and C such that A gets 50% of what B gets and B gets 50% of what C gets.

### Answer

Let the amount of money gets by C = Rs. Z

$$\therefore \text{Amount of money B gets} = (50\% \text{ of Rs. } Z)$$

$$\therefore \text{Amount of money A gets} = (50\% \text{ of B})$$

$$= (25\% \text{ of Rs. } Z)$$

Now,

$$Z + (50\% \text{ of Rs.}Z) + (25\% \text{ of Rs.}Z) = \text{RS.}7000$$

$$\Rightarrow Z + (Z \times 50/100) + (Z \times 25/100) = 7000$$

$$\Rightarrow Z + 50 Z/100 + 25 Z/100 = 7000$$

$$\Rightarrow 175 Z/100 = 7000$$

$$\Rightarrow Z = 7000 \times 100/175$$

$$\Rightarrow Z = 7000 \times 4/7$$

$$\Rightarrow Z = 4000$$

$$\therefore \text{C gets} = \text{Rs.}4000$$

$$\therefore \text{Amount of money B gets} = (50\% \text{ of Rs.}Z)$$

$$= (50\% \text{ of Rs.}4000)$$

$$= (\text{Rs.}4000 \times 50/100)$$

$$= \text{Rs.}2000$$

$$\therefore \text{Amount of money A gets} = (25\% \text{ of Rs.}Z)$$

$$= (25\% \text{ of Rs.}4000)$$

$$= (\text{Rs.}4000 \times 25/100)$$

$$= \text{Rs.}1000$$

## 22. Question

Find the percentage of pure gold in 22-carat gold, if 24-carat gold is 100% pure.

### Answer

22-carat gold contains 22 parts out of 24 parts.

$$\therefore \text{Percentage of pure gold in 22-carat gold} = \left(\frac{22}{24} \times 100\right)\% = 91\frac{2}{3}\%.$$

Hence, 22-carat gold contains  $91\frac{2}{3}\%$  of pure gold.

## 23. Question

The salary of an officer is increased by 25%. By what per cent should the new salary be decreased to restore the original salary?

### Answer

Let the original salary = Rs.100

Then,

$$\text{After increment of 25\%} = 100 (1 + 25/100)$$

$$= 100 (125/100)$$

$$= \text{Rs.}125$$

Now,

To restore the original salary,

Let the new salary decreased by Z%

$$\therefore 125(1 - Z/100) = 100$$



$$\Rightarrow (1 - Z/100) = 100/125$$

$$\Rightarrow (1 - Z/100) = 4/5$$

$$\Rightarrow Z/100 = 1/5 [1 - 4/5 = 1/5]$$

$$\Rightarrow Z = 100/5$$

$$\Rightarrow Z = 20\%$$

## Exercise 9B

### 1. Question

Choose the correct answer:  $\frac{3}{5} = ?$

A. 30%

B. 40%

C. 45%

D. 60%

### Answer

$$3/5 = (3/5 \times 100) \%$$

$$= (3 \times 20) \%$$

$$= 60\%$$

### 2. Question

0.8% when expressed as a percentage, is

A. 0.08

B. 0.008

C. 8

D. 0.8

### Answer

$$0.8\% = 0.8/100$$

$$= 0.008$$

### 3. Question

6 : 5 when expressed as a percentage, is

A.  $83\frac{1}{3}\%$

B. 90%

C. 120%

D. 6.5%

### Answer

$$6 : 5 = 6/5$$

$$= (6/5 \times 100) \% [100\% = 1]$$

$$= (6 \times 20) \%$$

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$$= 120 \%$$

#### 4. Question

5% of a number is 9. The number is

- A. 45
- B. 90
- C. 135
- D. 180

#### Answer

Let number = Z

Then,

$$5\% \text{ of } Z = 9$$

$$\Rightarrow \frac{5}{100} \times Z = 9$$

$$\Rightarrow 5Z = 900$$

$$\Rightarrow Z = 180$$

#### 5. Question

What per cent of 90 is 120?

- A. 75%
- B.  $33\frac{1}{3}\%$
- C.  $133\frac{1}{3}\%$
- D. none of these

#### Answer

Let Z% of 90 is 120

$$\therefore \frac{Z}{100} \times 90 = 120$$

$$\Rightarrow 90Z = 120 \times 100$$

$$\Rightarrow Z = \frac{12000}{90}$$

$$\Rightarrow Z = \frac{400}{3}$$

$$\Rightarrow Z = 133\frac{1}{3}\%$$

#### 6. Question

What per cent of 10 kg 250 g?

- A. 25%
- B. 5%
- C. 10%
- D. 2.5%

#### Answer

$$10 \text{ kg} = 10 \times 1000$$

$$= 10000 \text{ g}$$

Let Z% of 1000 is 250

$$\therefore Z/100 \times 10000 = 250$$

$$\Rightarrow 100 Z = 250$$

$$\Rightarrow Z = 250/100$$

$$\Rightarrow Z = 2.5\%$$

### 7. Question

40% of? = 240

A. 60

B. 600

C. 6000

D. 960

### Answer

Let, 40% of Z = 240

$$\Rightarrow 40/100 \times Z = 240$$

$$\Rightarrow Z = 240 \times 100/40$$

$$\Rightarrow Z = 6 \times 100 [40 \times 6 = 240]$$

$$\Rightarrow Z = 600$$

### 8. Question

?% of 400 = 60

A. 6

B. 12

C. 15

D. 20

### Answer

Let, Z% of 400 = 600

$$\Rightarrow Z/100 \times 400 = 60$$

$$\Rightarrow 4 Z = 60$$

$$\Rightarrow Z = 60/4$$

$$\Rightarrow Z = 15$$

### 9. Question

(180% of ?)  $\div$  2 = 504

A. 400

B. 480

C. 600

D. 560

### Answer

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$$\text{Let } (180\% \text{ of } Z) \div 2 = 504$$

$$\therefore (180/100 \times Z) \div 2 = 504$$

$$\Rightarrow (18/10 \times Z) = 504 \times 2$$

$$\Rightarrow Z = 504 \times 2 \times 10/18$$

$$\Rightarrow Z = 504 \times 10/9$$

$$\Rightarrow Z = 560$$

### 10. Question

20% of Rs. 800 = ?

A. Rs.160

B. Rs.16

C. Rs.1600

D. none of these

### Answer

$$20\% \text{ of Rs.}800 = 20/100 \times 800$$

$$= 20 \times 8$$

$$= 160$$

### 11. Question

In an examination, Nitin gets 98 marks. This amounts to 56% of the maximum marks.

What are the maximum marks?

A. 75

B. 150

C. 175

D. 225

### Answer

Let the maximum marks = Z

$$\therefore 56\% \text{ of } Z = 98$$

$$\Rightarrow Z \times 56/100 = 98$$

$$\Rightarrow Z = 98 \times 100/56$$

$$\Rightarrow Z = 7 \times 100/4$$

$$\Rightarrow Z = 175$$

### 12. Question

A number is first increased by 10% and then reduced by 10%. The number

A. does not change

B. decrease by 1%

C. increased by 1%

D. none of these

### Answer

Let the number = Z

10% increased by number =  $Z (1 + 10/100)$

$$= 11Z/10$$

Now,

10% decreased by number =  $11Z/10 (1 - 10/100)$

$$= (11Z/10) (90/100)$$

$$= 99Z/100$$

$$\therefore \text{difference} = Z - 99Z/100$$

$$= Z/100$$

Percentage of decreases =  $Z/100 \times 1/Z \times 100$

$$= 1\%$$

### 13. Question

A period of 4 hours 30 min is what per cent of a day?

A.  $18\frac{3}{4}\%$

B. 20%

C.  $16\frac{2}{3}\%$

D. 19%

### Answer

$$4 \text{ hours } 30 \text{ min} = (4 \times 60) + 30$$

$$= 240 + 30$$

$$= 270 \text{ min}$$

$$24 \text{ hours} = 24 \times 60$$

$$= 1440 \text{ min}$$

Now,

$$\text{Percentage} = (270/1440 \times 100) \%$$

$$= (3/16 \times 100) \%$$

$$= (3/4 \times 25) \%$$

$$= (75/4) \%$$

$$= 18\frac{3}{4}\%$$

### 14. Question

In an examination, 65% of the total examines passed. If the number of failures is 420, the total number of examines is

A. 500

B. 1000

C. 1200

D.1625

**Answer**

Let the total number of examinees = Z

Percentage of examinees failed =  $(100 - 65) \% = 35\%$

$\therefore 35\%$  of Z = 420

$$\Rightarrow Z \times 35/100 = 420$$

$$\Rightarrow Z = 420 \times 100/35$$

$$\Rightarrow Z = 12 \times 100$$

$$\Rightarrow Z = 1200$$

**15. Question**

A number exceeds 20% of itself by 40. The number is

A. 50

B. 60

C. 80

D. 320

**Answer**

Let the number = Z

$\therefore 20\%$  of Z + 40 = Z

$$\Rightarrow (Z \times 20/100) + 40 = Z$$

$$\Rightarrow Z/5 + 40 = Z$$

$$\Rightarrow Z - Z/5 = 40$$

$$\Rightarrow 4Z/5 = 40$$

$$\Rightarrow Z = 40 \times 5/4$$

$$\Rightarrow Z = 50$$

**16. Question**

A number decreased by  $27\frac{1}{2}\%$  of itself by 87. The number is

A. 58

B. 110

C. 120

D. 135

**Answer**

Let the number = Z

$\therefore Z - (27\frac{1}{2}\%$  of Z) = 87

$$\Rightarrow Z - (Z \times 55/2 \times 1/100) = 87$$

$$\Rightarrow Z - (Z \times 11/2 \times 1/20) = 87$$

$$\Rightarrow Z - (11Z/40) = 87$$

$$\Rightarrow 29Z/40 = 87$$

$$\Rightarrow 29Z/40 = 87$$

$$\Rightarrow Z = 87 \times 40/29$$

$$\Rightarrow Z = 120$$

### 17. Question

0.05 is what per cent of 20?

A. 25%

B. 2.5%

C. 0.25%

D. 0.025%

### Answer

$$\text{Percentage} = (0.05/20 \times 100) \%$$

$$= (0.05 \times 5) \%$$

$$= 0.25\%$$

### 18. Question

One-third of 1206 is what per cent of 134?

A. 3%

B. 30%

C. 20%

D. 300%

### Answer

$$\text{Percentage} = \{(1/3 \times 1206) \times (1/134) \times 100\} \%$$

$$= \{402 \times 1/134 \times 100\} \%$$

$$= \{3 \times 100\} \%$$

$$= 300\%$$

### 19. Question

x% of y is y% of?

A. x

B. 100x

C.  $\frac{x}{100}$

D.  $\frac{y}{100}$

### Answer

Let x% of y is y% of Z

$$\therefore x/100 \times y = y/100 \times Z$$

$$\Rightarrow x y/100 = y/100 \times Z$$

$$\Rightarrow Z = x \cdot y/100 \times 100/y$$

$$\Rightarrow Z = x$$

### 20. Question

What per cent of  $\frac{2}{7}$  is  $\frac{1}{35}$ ?

A. 2.5%

B. 10%

C. 20%

D. 25%

### Answer

$$\text{Percentage} = \{(1/35)/(2/7) \times 100\} \%$$

$$= \{1/35 \times 7/2 \times 100\} \%$$

$$= \{1/5 \times 1/2 \times 100\} \%$$

$$= \{1/5 \times 50\} \%$$

$$= 10\%$$

### CCE Test Paper-9

#### 1 A. Question

Express:

24% as a fraction;

#### Answer

24% means, 24 divided by 100.

$$\text{So, } 24\% = 24/100$$

$$= 6/25$$

#### 1 B. Question

Express:

105% as a decimal;

#### Answer

105% means, 105 divided by 100.

$$\text{So, } 105\% = 105/100$$

$$= 1.05$$

#### 1 C. Question

Express:

4 : 5 as a percentage;

#### Answer

$$4 : 5 = 4/5$$

$$= (4/5 \times 100) \% \text{ [Because } 100\% = 1]$$

$$= 80\%$$

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### 1 D. Question

Express:

56% as a ratio.

#### Answer

56% means, 56 divided by 100.

So,  $56\% = 56/100$

$= 14/25$

$= 14:25$

### 2. Question

If 34% of a number is 85, find the number.

#### Answer

Let the number = Z

$\therefore 34\% \text{ of } Z = 85$

$\Rightarrow 34/100 \times Z = 85$

$\Rightarrow Z = 85 \times 100/34$

$\Rightarrow Z = 5 \times 100/2$

$\Rightarrow Z = 250$

### 3. Question

The value of a machine depreciates every year by 10%. If the present value of the machine is Rs.54000, what was its value last year?

#### Answer

Let the value of the machine last year = Z

$\therefore$  Present value of the machine =  $(100 - 10)\%$  of Rs.Z

$\Rightarrow 54000 = 90\% \text{ of } Z$

$\Rightarrow 54000 = Z \times 90/100$

$\Rightarrow Z = 54000 \times 100/90$

$\Rightarrow Z = 600 \times 100$

$\Rightarrow Z = 60000$

### 4. Question

An alloy contains 30% copper, 42% nickel and rest zinc. Find the mass of zinc in 1 kg of alloy.

#### Answer

Given,

Percentage of copper = 30%

Percentage of nickel = 42%

$\therefore$  Percentage of zinc =  $\{100 - (30 + 42)\}\%$

$= 28\%$

Now,

Mass of zinc in 1 kg of the alloy =  $(28 \times 1/100)$  kg

$$= 0.28 \text{ kg}$$

$$= 0.28 \times 1000 \text{ g}$$

$$= 280 \text{ g}$$

### 5. Question

In a class, 60% of the total number of students are boys and there are 14 girls. How many students are there in the class?

### Answer

Let the total number of students = Z

Percentage of girls =  $(100 - 60) \% = 40\%$

Now,

Number of girls = 40% of Z

$$\Rightarrow 14 = Z \times 40/100$$

$$\Rightarrow Z = 14 \times 100/40$$

$$\Rightarrow Z = 14 \times 5/2$$

$$\Rightarrow Z = 35$$

### 6. Question

Which is largest in  $8\frac{1}{3}\%$ ,  $\frac{4}{25}$  and 0.15?

### Answer

$$= (25/3) \%$$

$$= (25/3 \times 1/100)$$

$$= 8.33/100$$

$$= 0.08 \text{ \_\_\_\_ (i)}$$

$$\frac{4}{25} = 0.16 \text{ \_\_\_\_ (ii)}$$

$$0.15 \text{ \_\_\_\_ (iii)}$$

From equation (i), (ii) and (iii),

$$0.16 > 0.15 > 0.08$$

### 7. Question

What per cent of  $\frac{2}{9}$  is  $\frac{1}{45}$ ?

A. 2.5%

B. 5%

C. 7.5%

D. 10%

### Answer

$$\text{Percentage} = \{(1/45)/(2/9) \times 100\} \%$$

$$= \{1/45 \times 9/2 \times 100\} \%$$

$$= \{1/5 \times 1/2 \times 100\} \%$$

$$= \{1/5 \times 50\} \%$$

$$= 10\%$$

### 8. Question

A number decreased by 30% gives 84. The number is

- A. 90
- B. 110
- C. 120
- D. 135

### Answer

Let the number = Z

$$\therefore Z - (30\% \text{ of } Z) = 84$$

$$\Rightarrow Z - (Z \times 30/100) = 84$$

$$\Rightarrow Z - 30 Z/100 = 84$$

$$\Rightarrow 70 Z/100 = 84$$

$$\Rightarrow Z = 84 \times 100/70$$

$$\Rightarrow Z = 12 \times 10$$

$$\Rightarrow Z = 120$$

### 9. Question

(?)% of 320 is 48?

- A. 25%
- B. 15%
- C. 14%
- D. 9%

### Answer

$$\text{Percentage} = (48/320 \times 100) \%$$

$$= (48/32 \times 10) \%$$

$$= (3/2 \times 10) \%$$

$$= 15\%$$

### 10. Question

What per cent of 45 is 54?

- A.  $83\frac{1}{3}\%$
- B. 104%
- C. 108%
- D. 120%

### Answer

$$\text{Percentage} = (54/45 \times 100) \%$$

$$= (54/9 \times 20) \%$$

$$= (6 \times 20) \%$$

$$= 120\%$$

### 11. Question

A number exceeds 25% of itself by 60. The number is

- A. 75
- B. 45
- C. 80
- D. 65

### Answer

Let the number = Z

$$\therefore 25\% \text{ of } Z + 60 = Z$$

$$\Rightarrow (Z \times 25/100) + 60 = Z$$

$$\Rightarrow Z/4 + 60 = Z$$

$$\Rightarrow Z - Z/4 = 60$$

$$\Rightarrow 3Z/4 = 60$$

$$\Rightarrow Z = 60 \times 4/3$$

$$\Rightarrow Z = 80$$

### 12. Question

5% of which number is 12?

- A. 120
- B. 180
- C. 240
- D. 320

### Answer

Let the number = Z

$$\therefore 5\% \text{ of } Z = 12$$

$$\Rightarrow Z \times 5/100 = 12$$

$$\Rightarrow Z = 12 \times 100/5$$

$$\Rightarrow Z = 12 \times 20$$

$$\Rightarrow Z = 240$$

### 13. Question

Fill in the blanks.

(i)  $7\frac{1}{2}\%$  of Rs.1200 = .....

(ii) 240 mL is.....% of 3 L.

(iii) If  $x\%$  of 35 is 42, then  $x = \dots\dots\dots$

(iv)  $\frac{12}{5} = \dots\dots\dots\%$ .

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(v)  $120 = (\dots)\%$  of 80.

**Answer**

(i) 90

$$7\frac{1}{2}\% \text{ of Rs.1200} = (15/2)\% \text{ of Rs.1200}$$

$$= 15/2 \times 1/100 \times 1200$$

$$= 15/2 \times 12$$

$$= 90$$

$\therefore$  Rs.90

(ii) 8

$$240 \text{ mL} = (240/1000) \text{ L}$$

Now,

$$\text{Percentage} = (240/1000 \times 1/3 \times 100)\%$$

$$= (240/10 \times 1/3)\%$$

$$= (80/10)\%$$

$$= 8\%$$

(iii) 120

$$X\% \text{ of } 35 = 42$$

$$\Rightarrow 35 \times X/100 = 42$$

$$\Rightarrow 35X/100 = 42$$

$$\Rightarrow X = 42 \times 100/35$$

$$\Rightarrow X = 6 \times 100/5$$

$$\Rightarrow X = 120$$

(iv) 240

$$12/5 = (12/5 \times 100)\%$$

$$= (12 \times 20)\%$$

$$= 240\%$$

(v) 150

Let the number = Z

$$\therefore 120 = Z\% \text{ of } 80$$

$$\Rightarrow 120 = 80 \times Z/100$$

$$\Rightarrow Z = 120 \times 100/80$$

$$\Rightarrow Z = 120 \times 5/4$$

$$\Rightarrow Z = 150$$

#### 14. Question

Write 'T' for true and 'F' for false for each of the following:

(i) 6% of 8 is 48.

(ii)  $6 : 5 = 30\%$ .

(iii)  $\frac{3}{5} = 60\%$ .

(iv) 6 hours = 25% of a day.

**Answer**

(i) False

$$6\% \text{ of } 8 = 8 \times \frac{6}{100}$$

$$= \frac{48}{100}$$

$$= 0.48$$

(ii) False

$$6:5 = \frac{6}{5}$$

$$= \left(\frac{6}{5} \times 100\right) \%$$

$$= (6 \times 20) \%$$

$$= 120\%$$

(iii) True

$$\frac{3}{5} = \frac{3}{5}$$

$$= \left(\frac{3}{5} \times 100\right) \%$$

$$= (3 \times 20) \%$$

$$= 60\%$$

(iv) True

$$1 \text{ day} = 24 \text{ hours}$$

$$6 \text{ hours} = \left(\frac{6}{24} \times 100\right) \%$$

$$= \left(\frac{1}{4} \times 100\right) \%$$

$$= 25\%$$

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